

Manti-La Sal NF Forest Plan Revision Assessment Information

Beaver: A focal species for sure

Grand Canyon Trust
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Significant Assessment Issue

Dam-building North American beaver (*Castsor Canadensis*) are a keystone species, providing myriad ecosystem services, including but not limited to flood force amelioration; reconnection of creek beds to floodplains; expansion of riparian areas; habitat for amphibians, birds, small and moderate-sized mammals; extension of seasonal streamflow; subirrigation of land downstream of dams; cooling of water; and increased stream complexity.

Far more suitable habitat for beaver exists on the Manti-La Sal NF than is currently occupied by beaver. Beaver that are being killed for occupation of irrigation canals or for other perceived or real conflicts with humans could be translocated to creeks and other aquatic areas on the Manti-La Sal per the [2010-2020 Utah Beaver Management Plan](#).

Information provided (see below) provides the Manti-La Sal NF with the online tools to understand or confirm the BRAT and R-CAT maps showing capacity for occupation of streams by dam-building beaver on the Manti-La Sal NF.

Information Provided

1. [\[US Fish and Wildlife Service. 2015. *The Beaver Restoration Guidebook*\]](#)
This USFWS 2015 guidebook by the most prominent western U.S. beaver ecologists and practitioners (including Kent Woodruff of USFS) includes the ecology of beaver (Section I on Ecology), which provides the basis for designating beaver as a focal species.
2. [\[Stevens, C.E., et al. 2007. *Beaver \(Castor canadensis\) as a surrogate species for conserving anuran amphibians on boreal streams in Alberta, Canada*\]](#)

This research, comparing streams with and without beaver dams in boreal foothills in Canada, showed that western toads (aka boreal toads, a sensitive species in Utah), boreal chorus frogs, and wood frogs were much more common in streams with beaver dams. Beaver-dam streams had 24 more times western toads than unobstructed streams. Boreal toads are being proposed by the Manti-La Sal NF as a species of conservation concern.
3. [\[Macfarlane, W. 2014. *The Beaver Restoration Assessment Tool*\]](#)

This report presents the development and application of the Beaver Restoration Assessment Tool (BRAT), a decision support and planning tool for beaver management, to analyze all perennial rivers and streams in Utah.

The Beaver Restoration Assessment Tool has been used by the State of Utah to assess perennial creeks and water bodies throughout the state, for their potential to support beavers who can build dams that will be able to persist at least two years. A description of the method used to derive BRAT maps is provided in the document.

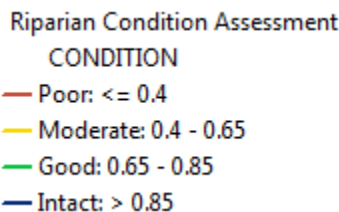
4. [\[Map - Existing Beaver Dam Capacity – Dixie, Fishlake, and Manti-La Sal NF\]](#)

This map places beaver capacity within the context of the capacity of all three national forests in southern Utah. Note the comparatively greater potential for beaver dams in the Ferron-Price and Sanpete districts of Manti-La Sal NF compared to the Moab and Monticello Districts. This, however, does not diminish, but may heighten the importance of supporting beaver in the Moab and Monticello Districts because of the concentration of biodiversity in beaver-dammed creeks.

4. [-Moab-Monticello BRAT-RCAT combined map](#)
[-Ferron-Price BRAT-RCAT combined map](#)

These two maps (one for Ferron-Price and Sanpete Districts and the other for Moab-Monticello District) have been generated to show the MLSNF creeks/streams most capable of successful occupation by dam-building beaver. The streams are those that have been estimated to be in “Intact” or “Good” riparian condition (Riparian Condition Assessment, see below) and are in one of the two most favorably-assessed conditions for supporting dam-building beaver, i.e., “Potential Conservation/Restoration” [aka “Low Hanging Fruit”] or “Quick Return” (Beaver Restoration Assessment, see below).

The [Riparian Condition Assessment](#) is a line network that is symbolized by a field that represents overall riparian area condition (based on Riparian Vegetation Departure, land use intensity, and floodplain fragmentation) on a continuous scale from 0 (poor) to 1 (intact) in a field called 'CONDITION'. These values are broken into four bins: poor, moderate, good and intact.



The [Beaver Restoration Assessment](#) describes the upper limits of riverscapes to support beaver dam-building activities. Both existing and historic capacity are estimated to evaluate five key lines of evidence: 1) a perennial water source, 2) availability of dam building materials, 3) ability to build a dam at baseflow, 4) likelihood of dams to withstand a typical flood, and 5) likelihood that stream gradient would limit or completely eliminate dam building by beaver. Fuzzy inference systems are used to combine these lines of evidence while accounting for uncertainty. The values are broken into seven bins



“Low Hanging Fruit” [also called “Potential Conservation/Restoration Zone”] signifies habitats that are either currently inhabited by beaver or are in relatively good condition for beaver re-colonization and/or reintroduction. “Quick Return Restoration Zones” signify streams that currently lack riparian conditions necessary to support beaver dam-building activity (e.g., incised or heavily grazed streams) at anything other than rare or occasional densities, but can, with minimal intervention and changes in management practices (e.g., cattle grazing exclosures), exhibit relatively rapid ecological and fluvial responses that allow for beaver recovery and subsequent maintenance of such conditions

5. Excel sheet data for combined MLSNF combined BRAT-RCAT maps (see above)
6. Anecdotal Utah Division of Wildlife Resources information regarding current presence of beaver on the Manti-La Sal NF. August 2016.

Assessment Needed

Manti-La Sal NF has the resources it needs (e.g., R-CAT maps and data layers; BRAT maps and data layers; UDWR and FS staff knowledge of where beaver are and are not) to present, in the DEIS, an assessment of Existing Conditions for beaver. Given the significant ecosystem services provided by dam-building beaver, the DEIS should focus extensive attention to the assessment

of where beaver are present; where beaver could be present; and where quick-return restoration would expand the presence of beaver on the forest.